We claim:

1. A process comprising:

(a) contacting a fuel containing organosulfur impurities with an organic hydroperoxide in the presence of an oxidation catalyst to form an oxidized fuel, wherein a substantial portion of the organosulfur impurities are converted into sulfones and a residual amount of organic hydroperoxide remains in the oxidized fuel;

(b) extracting the sulfones from the oxidized fuel to form a fuel having a reduced amount of sulfones and a residual amount of organic hydroperoxide; and

(c) contacting the fuel from step (b) with a Group 4 to 11 transition metal-containing decomposition catalyst.

2. The process of claim **1** wherein the organic hydroperoxide is tertiary butyl hydroperoxide.

3. The process of claim **1** wherein the oxidation catalyst is a titanium-containing silicon oxide catalyst.

4. The process of claim **1** wherein the sulfones are extracted by solid-liquid extraction using at least one sulfone adsorbent.

5. The process of claim **1** wherein the sulfones are extracted by liquid-liquid extraction using at least one polar solvent selected from the group consisting of a C_1-C_4 alcohol, a C_3-C_8 ketone, water, and mixtures thereof.

6. The process of claim **5** wherein the polar solvent is a mixture of methanol and water.

7. The process of claim **1** wherein Group 4 to 11 transition metal-containing decomposition catalyst comprises a Group 4 to 11 transition metal and a support.

8. The process of claim **7** wherein the Group 4 to 11 transition metal is selected from the group consisting of chromium, titanium, manganese, vanadium, iron, ruthenium, cobalt, and mixtures thereof.

9. The process of claim **7** wherein the Group 4 to 11 transition metal is selected from the group consisting of chromium, titanium, iron, and mixtures thereof.

10. The process of claim **7** wherein the support is selected from the group consisting of silicas, aluminas, silica-aluminas, and carbon.

11. The process of claim **7** wherein the decomposition catalyst comprises chromium, silica, and optionally titanium.

12. A process comprising:

(a) extracting organonitrogen impurities from a fuel containing organonitrogen and organosulfur impurities whereby the nitrogen content of fuel is reduced by at least 50 percent to produce a fuel having a reduced amount of organonitrogen impurities;

(b) isolating the fuel having a reduced amount of organonitrogen impurities;

(c) contacting the isolated fuel having a reduced amount of organonitrogen impurities with an organic hydroperoxide in the presence of a titanium-containing silicon oxide catalyst to form an oxidized fuel, wherein a substantial portion of the organosulfur impurities are converted into sulfones and a residual amount of organic hydroperoxide remains in the oxidized fuel;

(d) extracting the sulfones from the oxidized fuel by solid-liquid extraction using at least one sulfone adsorbent or liquid-liquid extraction using at least one polar solvent to form a fuel having a reduced amount of sulfones and a residual amount of organic hydroperoxide; and

(e) contacting the fuel from step (d) with a Group 4 to 11 transition metal-containing decomposition catalyst comprising a Group 4 to 11 transition metal and a support.

13. The process of claim **12** wherein the organic hydroperoxide is tertiary butyl hydroperoxide.

14. The process of claim **12** wherein the titanium-containing silicon oxide catalyst is titania-on-silica.

15. The process of claim **12** wherein the sulfone adsorbent is selected from the group consisting of silicas, aluminas, and silica-aluminas.

16. The process of claim **12** wherein the polar solvent is selected from the group consisting of a C_1-C_4 alcohol, a C_3-C_8 ketone, water, and mixtures thereof.

17. The process of claim **12** wherein the Group 4 to 11 transition metal is selected from the group consisting of chromium, titanium, iron, and mixtures thereof and the support is selected from the group consisting of silicas, aluminas, silica-aluminas, and carbon.

18. The process of claim **12** wherein the decomposition catalyst comprises chromium, silica, and optionally titanium.

19. A fuel produced by the process of claim **1**.

20. A fuel produced by the process of claim **12**.